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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,557	01/16/2002	Ho-Jin Kweon	1567.1025	1791
21171	7590	10/10/2003		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005				
			EXAMINER WILLS, MONIQUE M	
			ART UNIT 1746	PAPER NUMBER

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,557

Applicant(s)

KWEON ET AL.

Examiner

Wills M Monique

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-18 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 19-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Priority

Republic of Korea foreign priority document(s) 2001-3212, filed January 16, 2002 and submitted under 35 U.S.C. 119(a)-(d), has/have been received and placed of record in the file.

Information Disclosure Statement

The information disclosure statement(s) filed January 16, 2002 has/have been received and complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609.

Allowable Subject Matter

Claims 11 & 15 are allowable over the prior art of record, because the prior art is silent to a core comprising a lithiated compound and a first surface-treatment layer comprising an Al-included hydroxides, Al-included oxyhydroxides, Al-included oxycarbonate or Al-included hydroxycarbonate and a second surface-treatment layer comprising at least one of Si-included hydroxides, Si-included oxyhydroxides, Si-included oxycarbonate or Si-included hydroxycarbonate.

Claims 12-14 & 16-18 are allowable over the prior art of record, because the prior art is silent to a method of fabricating a positive active material for a rechargeable lithium battery comprising coating a lithium-cobalt based compounds with a first coating

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liquid comprising Al to form a first coating and coating the first coating with a second coating liquid comprising Si.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8,10, 19-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang U.S. Patent 5,783,328.

Wang teaches a method of coating a spinel of $\text{Li}_{1+x}\text{Mn}_2\text{O}_4$ with lithium hydroxide (col. 2, lines 55-65). The spinel may be first treated with other hydroxides instead of or in addition to lithium hydroxide including potassium hydroxide or sodium hydroxide or any mixture thereof (col. 2, lines 55-65). The coated spinel is dried by heating at a temperature of about 200°C to 700°C in carbon dioxide gas (col. 2, lines 55-65) for about 1 to 20 hours (col. 2, lines 35-45). The resulting mixture is compressed into a positive electrode and placed in a coin cell with a negative electrode (col. 9, lines 50-65). The cell inherently has a separator disposed therebetween. In an alternative preferred embodiment, the lithium manganese oxide spinel powder may be first treated by immersing it in an aqueous hydroxide solution, of sodium hydroxide (NaOH), potassium hydroxide (KOH), or lithium hydroxide (LiOH) or mixtures thereof. The

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immersion of spinel powder in hydroxide solution may be carried out in a heated hydroxide solution or under ambient conditions. After immersion in the hydroxide solution, the solution is then heated to remove water therefrom leaving behind a wet lithium hydroxide coating on the spinel particles. The spinel particles may then be heated on a hot surface to remove all excess water leaving behind a dry hydroxide coating on the particles. Thereupon, the hydroxide coated spinel may be subjected to treatment with carbon dioxide gas at temperatures between about 200 °C and 700 °C. in the above described manner forming a carbonate coating on the surface of the spinel. See column 5, lines 35-52 and Example 4.

A preferred treatment of spinel may also involve pre-coating the spinel with both an alkali metal hydroxide, e.g., lithium hydroxide and a soluble metal salt of carboxylic acid, e.g., a water soluble transition metal salt of a carboxylic acid such as cobalt acetate. This may be accomplished either in a single step with metal hydroxide and metal salt of a carboxylic acid both present in the same solution or two separate steps with the metal hydroxide present in one solution and the metal salt of a carboxylic acid present in another solution. The pre-coated spinel is then heated in an atmosphere of carbon dioxide (alternatively, in an inert gas such as argon, helium or nitrogen) at temperature between about 200° C. and 700 ° C., preferably between about 200° C. and 400° C. Such preferred treatment is set forth in Example 8. This type of dual pretreatment of the spinel greatly reduces both irreversible storage loss (at 60° C.) regardless of whether the spinel is stored in charged or discharged state. See

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column 4, lines 40-55. Metal salts of carboxylic acids include transition metals from groups IIIB, IVB, VB, VIB, VIIB, VIII, IB and IIB of the periodic table (col. 3, lines 45-60).

Conclusions

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Amatucci et al. teaches a lithiated intercalation battery comprising a passivating layer of lithium hydroxide. The reference is silent to at least two surface-treatment layers and two coating element included hydroxides, oxyhydroxides, oxycarbonated or hydroxycarbonates. Howard Jr. et al. U.S. Patent 6,558,844 teaches coating a lithium transition metal oxide. The reference is silent to at least two surface-treatment layers and two coating element included hydroxides, oxyhydroxides, oxycarbonated or hydroxycarbonates

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

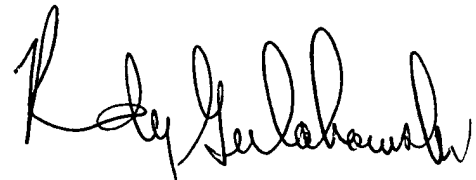
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If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 703-308-4333.

The unofficial fax number is (703) 305-3599. The Official fax number for non-final amendments is 703-872-9310. The Official fax number for after final amendments is 703-872-9311.

Mw

09/12/03

A handwritten signature in black ink, appearing to read "Randy Gulakowski", is written over a horizontal line.

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700